

FACTSHEET RISK REDUCTION MEASURES

Good Practice Catalogue - the Rules for Sustainable Management of Rainwater in an urbanized area (part II)

Where was it implemented?

Wrocław (Lower Silesia), Poland

Fields of action

- Settlement area

Related to measure from the catalogue of measures

- Blue and green infrastructure (no 61)

Area characterisation

- **Area type:** urban / semi-urban
- **Landscape type:** lowland (also hilly areas)

Problem

Past floodings, that happened in Wrocław after heavy rain events, contributed to numerous damages in the city. After these events a catalog indicating solutions to mitigate the risks of heavy rain has been prepared. This catalogue is also intended to implement the guidelines of the strategic document "Urban Plan for Adaptation to Climate Change for Wrocław city", which was produced in the MPA project (e.g. guideline for increasing the retention of small rainwater).



Source: Lejcuś K. et al.: Katalog dobrych praktyk zasady zrównoważonego gospodarowania wodami opadowymi na obszarze zabudowanym. Wrocław 2019 [<https://www.wroclaw.pl/srodowisko/files/dokumenty/26836/katalog-dobrych-praktyk-zlap-deszcz.pdf>]

Description and aim

It is important for local administrations to identify The municipality needs to find a list of possible solutions for the effective intake and discharge of rainwater in built-up areas (urban areas), because only a small part of the rainwater and melt water soaks into the ground there. This is especially a problem during heavy rain events. Reserchers at the University of Environmental and Life Sciences focused on finding solutions that allow the local management of this rainwater. The Good Practice Catalogue (part II) contains 16 solutions aimed at increasing the retentions of these waters (e.g. swale, water absorbing geocomposite, rain gardens, stormwater tree trenches, green roofs, pervious pavements, hydrophyte pond, infiltration basin, openwork plate, filter-bed channel, etc.). Solutions are recommended for single-family and multi-family housing, service facilities and sports as well as recreation areas. It is a practical guide with information on how residents can manage rainwater on their own (catch, hold and use it). It includes information on how to check the ground conditions themselves, how to calculate the amount of rainwater draining from the roof surface or what plants can be planted depending on the ground conditions and type of measure. The catalogue also provides a lot of pictures and photos. It consists of a descriptive part and 16 so-called solution cards. For all 16 solutions, optimisation possibilities for coastal regions are also given. The estimated costs for implementing one of the measures vary between 20 and 21,000 PLN (5 - 5,250 Euro). The given costs are estimated for a specific unit size (e.g. 1 m, 1 m²). The possibility for implementing a specific solution depends on the size and shape of the land available for the investment as well as soil and water conditions. The use of new, more environmentally friendly solutions can bring financial, social and ecological benefits. Some solutions are associated with increasing the proportion of vegetation, which positively affects the well-being of residents and the microclimate.

In summary, the implementation of these measures in a city helps to improve the quality of life of residents and reduces the risk of losses after heavy rainfall.

Effect of measure	
Prevention and protection by capturing rainwater (including heavy rainfall). Some solutions contribute to water purification.	
Description of implementation	
Effect horizon: short-term to long-term	Involved stakeholders: residents, designers and engineers
Implementation: November 2019 / ongoing	Initiator / responsible Wroclaw City Hall (Urząd Miejski Wrocławia)
Lessons-learned	
Main success factor: Information of residents about the advantages of these solutions (e.g. the possibility of retaining rainwater in-situ) and the positive impacts on the quality of their life. In addition, risk of losses caused by heavy rainfall are mitigated. Solutions from The Good Practice Catalogue, part II, support the implementation of the "Catch Rain programme" that aims at increasing small water retention measures in the whole city.	Main challenge: Decision making (selection) of the best solution at a specific location.
Synergies / beneficial aspects: Facilitate the implementation of the "Catch the Rain" subsidy programme. Schemes and tables support to find the best solution for a specific location. Use of new, more environmentally friendly solutions (shown in The Good Practice Catalogue, part II) can bring financial, social and ecological benefits. Some solutions increase the proportion of vegetation. This positively affects the well-being of residents and the microclimate.	Conflicts / Constraints: The location (dense buildings in the city) limits the feasibility of the solutions. There are places where only some of the solutions are suitable.
Key message to others starting with a similar task	
„The challenge is to convince citizens to implement on of the proposed measures. Public acceptance of the solutions is high due to damages caused by past flood events and the benefits of the measures as well as visual value.”	
Contact	
Dr hab. Krzysztof Lejcuś Wroclaw University of Environmental and Life Sciences e-mial: Krzysztof.lejcus@upwr.edu.pl	